

UNIT 1

Logical puzzle — *Cellular Adaptations*

Five cells from different tissues were each exposed to a different stimulus and responded with one of the five classic cellular adaptations. Use the clues to match **Tissue → Stimulus → Adaptation**.

Tissues: Cardiac myocyte, Liver hepatocyte, Skeletal muscle fiber, Bronchial epithelium, Thyroid follicular cell.

Stimuli: Increased workload, Chronic irritation, Hormonal stimulation, Reduced blood supply, Persistent infection.

Adaptations: Hypertrophy, Metaplasia, Hyperplasia, Atrophy, Dysplasia.

Puzzle clues

1. The cell that underwent **hyperplasia** was *not* part of the respiratory tract.
2. **Chronic irritation** caused an epithelial type to be replaced by another (a classic metaplasia).
3. The tissue that became **hypertrophic** experienced **increased workload**, but it was **not** the heart.
4. The **hepatocyte** later showed disordered cellular architecture after disease — the change was consistent with **dysplasia** caused by a **persistent infection**.
5. The cell that **atrophied** had been subjected to **reduced blood supply**; it was not skeletal muscle.
6. **Hormonal stimulation** produced an increase in number of cells (i.e., **hyperplasia**) and this effect did **not** occur in the liver or heart.
7. The **bronchial epithelium** was affected by **chronic irritation**, and it didn't undergo hyperplasia or atrophy.

B.Sc., CARDIAC TECHNOLOGY

PATHOLOGY PUZZLE

Your task

Determine the unique mapping of each **Tissue** → **Stimulus** → **Adaptation**.

(You can solve with pencil-and-paper, make a 5×5 grid, or use process-of-elimination.)

CRITERIA	DESCRIPTION	POINTS
1. Completeness	All correctly identified (A,B,C,D,E)	5 pts
2. Accuracy	No wrong answers	3 pts
4. Neatness	Clear handwriting, no erasures	2 pts
	TOTAL	10 pts